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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,971	11/25/2003	Kwun-Yao Ho	JCLA10372	9506
23900	7590	12/20/2004	EXAMINER	
J C PATENTS, INC. 4 VENTURE, SUITE 250 IRVINE, CA 92618			BROCK II, PAUL E	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/723,971

Applicant(s)

HO ET AL

Examiner

Paul E Brock II

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claims 5 and 6 are objected to because of the following informalities: The recitation of “the side edge” should be “a side edge” in both of these claims. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Umetsu et al. (USPAT 6424048, Umetsu).

With regard to claim 1, Umetsu discloses in figure 7n and 7p a vertical routing structure (combination of 20a's, 31 and 30's) inside a substrate (the stack of 29's) for connecting a first trace line (26, part of bottom 30) and a second trace line (19, part of top 30) electrically, wherein the first trace line and the second trace line are located at a first surface (bottom of 10) and a corresponding second surface (top of 10) of a stack layer in the substrate. Umetsu discloses in figures 7n and 7p a conductive rod (20a) that passes through the stack layer such that a first

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surface (above 14) and a corresponding second surface (below 11) of the conductive rod are exposed on the first surface and the second surface of the stack layer (stacked 29's). Umetsu discloses in figure 7n, first bonding pad (between the opening in 14) on the first surface of the conductive rod, wherein the first bonding pad is connected to the first trace line and that the transverse sectional area of the first bonding pad is smaller than the transverse sectional area of the first surface of the conductive rod. Umetsu discloses in figure 7n a second bonding pad (between the opening in 11) on the second surface of the conductive rod, wherein the second bonding pad is connected to the second trace line.

With regard to claim 2, Umetsu discloses in figure 7n wherein the transverse sectional area of the second bonding pad is also smaller than the transverse sectional area of the second surface of the conductive rod.

With regard to claim 3, Umetsu discloses in figures 7n and 7p wherein the stack layer includes a dielectric layer (11 or 14).

With regard to claim 4, Umetsu discloses in figures 4, 7n, and 7p, and column 7, line 67 – column 8, line 5 wherein the stack layer includes a plurality of dielectric layers (11 and 14) and at least a patterned circuit layer (12), and the circuit layer is positioned between any two neighboring dielectric layers.

With regard to claim 5, Umetsu discloses in figures 4, 7n and 7p wherein a side edge (side adjacent to 12a as shown in figure 7n) of the conductive rod is electrically connected to the circuit layer (on the top surface of flower 29 in figure 7p).

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With regard to claim 6, Umetsu discloses in figures 7, 7n and 7p wherein a side edge (side adjacent to 18 as shown in figure 7n) of the conductive rod is not electrically connected to the circuit layer.

### *Conclusion*

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Grassl, Lee et al. and Miyamoto et al. all teach conductive rods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul E Brock II whose telephone number is (571) 272-1723. The examiner can normally be reached on 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paul E Brock II

A handwritten signature in black ink, appearing to read "Paul E Brock II", with a stylized flourish at the end.